? **logon**

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*** It is now 2008/11/03 17:31:12 ***
  (Dialog time 2008/11/03 17:31:12)

HILIGHT set on as ''  ''
>>>100 is not in the range between 1 and 50, original value 30 is used.
IGOR705 is set ON as an alias for
2,9,15,16,20,35,65,77,99,148,160,233,256,275,347,348,349,474,475,476,583,6-
10,613,621,624,634,636,810,813
IGORMEDIC is set ON as an alias for
5,34,42,43,73,74,129,130,149,155,442,444,455
IGORINSUR is set ON as an alias for 169,625,637
IGORBANK is set ON as an alias for 139,267,268,625,626
IGORTRANS is set ON as an alias for 6,63,80,108,637
IGORSHOPCOUPON is set ON as an alias for 47,570,635,PAPERSMJ,PAPERSEU
IGORINVEN is set ON as an alias for 6,7,8,14,34,94,434
IGORFUNDTRANS is set ON as an alias for 608
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? **b igor705**

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>>>        77 does not exist
>>>       233 does not exist
>>>       476 does not exist
>>>3 of the specified files are not available
       03nov08 17:31:26 User268082 Session D115.1
            $0.00    0.242 DialUnits File415
     $0.00  Estimated cost File415
     $0.05  INTERNET
     $0.05  Estimated cost this search
     $0.05  Estimated total session cost   0.242 DialUnits

SYSTEM:OS  - DIALOG OneSearch
  File   2:INSPEC 1898-2008/Oct W1
         (c) 2008 Institution of Electrical Engineers
  File   9:Business & Industry(R) Jul/1994-2008/Oct 31
         (c) 2008 Gale/Cengage
*File   9: UD names were adjusted to reflect load date.
All data is present.
  File  15:ABI/Inform(R) 1971-2008/Nov 03
         (c) 2008 ProQuest Info&Learning
  File  16:Gale Group PROMT(R) 1990-2008/Oct 23
         (c) 2008 Gale/Cengage
*File  16: Because of updating irregularities, the banner and the
update (UD=) may vary.
  File  20:Dialog Global Reporter 1997-2008/Nov 03
         (c) 2008 Dialog
  File  35:Dissertation Abs Online 1861-2008/Oct
         (c) 2008 ProQuest Info&Learning
  File  65:Inside Conferences 1993-2008/Nov 03
         (c) 2008 BLDSC all rts. reserv.
  File  99:Wilson Appl. Sci & Tech Abs 1983-2008/Aug
         (c) 2008 The HW Wilson Co.
  File 148:Gale Group Trade & Industry DB 1976-2008/Oct 30
         (c) 2008 Gale/Cengage
*File 148: The CURRENT feature is not working in File 148.
See HELP NEWS148.
  File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
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   File 256:TecInfoSource 82-2008/Jan
         (c) 2008 Info.Sources Inc
   File 275:Gale Group Computer DB(TM) 1983-2008/Oct 22
         (c) 2008 Gale/Cengage
   File 347:JAPIO Dec 1976-2007/Dec(Updated 080328)
         (c) 2008 JPO & JAPIO
   File 348:EUROPEAN PATENTS 1978-200844
         (c) 2008 European Patent Office
   File 349:PCT FULLTEXT 1979-2008/UB=20081030|UT=20081023
         (c) 2008 WIPO/Thomson
   File 474:New York Times Abs 1969-2008/Nov 01
         (c) 2008 The New York Times
   File 475:Wall Street Journal Abs 1973-2008/Nov 01
         (c) 2008 The New York Times
   File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 Gale/Cengage
*File 583: This file is no longer updating as of 12-13-2002.
   File 610:Business Wire 1999-2008/Nov 03
         (c) 2008 Business Wire.
*File 610: File 610 now contains data from 3/99 forward.
Archive data (1986-2/99) is available in File 810.
   File 613:PR Newswire 1999-2008/Nov 03
         (c) 2008 PR Newswire Association Inc
*File 613: File 613 now contains data from 5/99 forward.
Archive data (1987-4/99) is available in File 813.
   File 621:Gale Group New Prod.Annou.(R) 1985-2008/Oct 09
         (c) 2008 Gale/Cengage
   File 624:McGraw-Hill Publications 1985-2008/Nov 03
         (c) 2008 McGraw-Hill Co. Inc
   File 634:San Jose Mercury  Jun 1985-2008/Oct 31
         (c) 2008 San Jose Mercury News
   File 636:Gale Group Newsletter DB(TM) 1987-2008/Oct 23
         (c) 2008 Gale/Cengage
   File 810:Business Wire 1986-1999/Feb 28
         (c) 1999 Business Wire
   File 813:PR Newswire 1987-1999/Apr 30
         (c) 1999 PR Newswire Association Inc


        Set  Items  Description
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? s (((historical or history or profile) (w) (usage or load)) or ((usage
or load) (5n) report???) or (usage or load)) and (energy or power or
electricity or utility)

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Processing
Processed  20 of  26 files ...
Processing
Completed processing all files
        3853917   HISTORICAL
        5532641   HISTORY
        3081765   PROFILE
        1719404   USAGE
        2092137   LOAD
           2464   ((HISTORICAL OR HISTORY) OR PROFILE)(W)(USAGE OR LOAD)
        1719404   USAGE
        2092137   LOAD
       33854806   REPORT???
          62460   (USAGE OR LOAD)(5N)REPORT???
        1719404   USAGE
        2092137   LOAD
       10087598   ENERGY
       13086264   POWER
        1947585   ELECTRICITY
        2348382   UTILITY
    S1 1298709   (((HISTORICAL OR HISTORY OR PROFILE ) (W)  (USAGE OR
                  LOAD)) OR ((USAGE OR LOAD ) (5N) REPORT???) OR (USAGE OR
                  LOAD)) AND (ENERGY OR POWER OR ELECTRICITY OR UTILITY)
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? s (exchange or auction or market or marketplace)

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Completed processing all files
        13185140  EXCHANGE
          884574  AUCTION
        31047205  MARKET
         2685537  MARKETPLACE
       S238526420  (EXCHANGE OR AUCTION OR MARKET OR MARKETPLACE)
```

? s (report??? (w) (load or usage or demand)) and (energy or power or electricity or utility)

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Processed  20 of  26 files ...
Completed processing all files
        33854806  REPORT???
         2092137  LOAD
         1719404  USAGE
         8705030  DEMAND
            5479  REPORT???(W)((LOAD OR USAGE) OR DEMAND)
        10087598  ENERGY
        13086264  POWER
         1947585  ELECTRICITY
         2348382  UTILITY
       S3    1623  (REPORT??? (W)  (LOAD OR USAGE OR DEMAND)) AND (ENERGY OR
                   POWER OR ELECTRICITY OR UTILITY)
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? s bidding or s2

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Processed 10 of 26 files ...
>>>Disk space full
>>>Workspace is full

? **ds**


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Set    Items   Description
S1   1298709   (((HISTORICAL OR HISTORY OR PROFILE ) (W) (USAGE OR LOAD))
              OR ((USAGE OR LOAD ) (5N) REPORT???) OR (USAGE OR LOAD)) AND -
              (ENERGY OR POWER OR ELECTRICITY OR UTILITY)
S2   38526420  (EXCHANGE OR AUCTION OR MARKET OR MARKETPLACE)
S3      1623   (REPORT??? (W)  (LOAD OR USAGE OR DEMAND)) AND (ENERGY OR -
              POWER OR ELECTRICITY OR UTILITY)
```


? **s s1 and s2**

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Processed  10 of  26 files ...
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Processed  20 of  26 files ...
Processing
Processing
Completed processing all files
        1298709  S1
       38526420  S2
     S4  503662  S1 AND S2
```

? s s4 and s3

```
        503662  S4
          1623  S3
     S5     566  S4 AND S3
```

? s s5 and ((providing or report???) (w) (usage or load) (w) (bidders or participants))

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Processed  10 of  26 files ...
Processing
Processed  20 of  26 files ...
Completed processing all files
          566  S5
     10193988  PROVIDING
     33854806  REPORT???
      1719404  USAGE
      2092137  LOAD
       334148  BIDDERS
      2270215  PARTICIPANTS
            1  (PROVIDING OR REPORT???)(W)(USAGE OR LOAD)(W)(BIDDERS OR
               PARTICIPANTS)
     S6     1  S5 AND ((PROVIDING OR REPORT???) (W) (USAGE OR LOAD) (W)
               (BIDDERS OR PARTICIPANTS))
```

? t s6/3,k/1

Dialog eLink: Order File History
6/3K/1 (Item 1 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS

02038564

Secure transaction management
Sicheres Transaktionsmanagement
Gestion de transactions securisees

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	Country	Number	Kind	Date	
Patent	EP	1643340	A2	20060405	(Basic)
	EP	1643340	A3	20060531	

ApplicationEP200507792319960213

PrioritiesUS38810719950213

Designated States:
AT; BE; CH; DE; DK; ES; FR; GB; GR; IE;
IT; LI; LU; MC; NL; PT; SE;

Related Parent Numbers: Patent (Application):EP 861461 (EP 96922371)

IPC	Level	Value	Position	Status	Version	Action	Source	Office
G06F-0001/00	A	I	F	B	20060101	20060213	H	EP

Abstract Word Count: 147
NOTE: 5b
NOTE: Figure number on first page: 5b

Type	Pub. Date	Kind	Text

Publication:	English
Procedural:	English
Application:	English

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200614	2171
SPEC A	(English)	200614	193720
Total Word Count (Document A) 195924			
Total Word Count (Document B) 0			
Total Word Count (All Documents) 195924			

Specification: ...as metering, budgeting, decrypting and/or
fingerprinting, may as relates to a certain user content **usage** activity,
be performed in a user's local VDE installation secure subsystem, or said
processes... ...For example, a local VDE installation may perform
decryption and save any, or all of, **usage** metering information related to
content and/or electronic appliance **usage** at such user installation could
be performed at the server employing secure (e.g., encrypted... ...also
be used for near real time, frequent, or more periodic secure receipt of
content **usage** information from said user installation, with, for example,
metered information being maintained only temporarily at... ...least in
part, opaque.

VDE supports a general purpose foundation for secure transaction
management, including **usage** control, auditing, **reporting**, and/or payment.
This general purpose foundation is called "VDE Functions" ("VDEFs"). VDE
also supports a collection of "atomic" application elements (e.g., **load**
modules) that can be selectively aggregated together to form various VDEF
capabilities called control methods... ...an electronic appliance
includes VDEF capabilities, it is called a "Rights Operating System"
(ROS). VDEF **load** modules, associated data, and methods form a body of
information that for the purposes of ... ...participant as part of such a
contribution. In the most general example, a generally certified **load**
module (certified for a given VDE arrangement and/or content class) may
be used with... ...are allowed, can independently and securely add,
delete, and/or otherwise modify the specification of **load** modules and
methods, as well as add, delete or otherwise modify related information.

Normally the... ...a content distribution application, to be used by such installation for securely controlling VDE content **usage**, auditing, **reporting** and/or payment. Similarly, a specific VDE participant may enter into a VDE user agreement... ...a given transaction to occur are met. This includes the secure execution of any required **load** modules and the availability of any required, associated data. For example, required **load** modules and data (e.g. in the form of a method) might specify that sufficient ... ...authorized source must be confirmed as available. It might further require certain one or more **load** modules execute as processes at an appropriate time to ensure that such credit will be... ...for a general purpose, sufficiently secure distributed electronic commerce solution. VDE enables an electronic commerce **marketplace** that supports divergent, competitive business partnerships, agreements, and evolving overall business models. For example, VDE... ...content container and associating content control information with said content), content and/or electronic appliance **usage** auditing, content **usage** analysis, as well as content **usage** control; and b) said hardware having been designed to securely handle processing **load** module control activities, wherein said control processing activities may involve a sequence of required control... ...acquire or otherwise use a portion of such product or section. VDE supports metering and **usage** control over a variety of increments (including "atomic" increments, and combinations of different increment types... ...store at a user's site potentially highly detailed information reflective of a user's **usage** of a variety of different content segment types and employing both inexpensive "exposed" host mass... ...trusted chain of handling capabilities for pathways of distributed electronic information and/or for content **usage** related information. Such chains may extend, for example, from a content creator, to a distributor, a redistributor, a client user, and then may provide a pathway for securely **reporting** the same and/or differing **usage** information to one or more auditors, such as to one or more independent clearinghouses and... ...and/or different pathways employed for certain content handling, and related content control information and **reporting** information handling, may also be employed as one or more pathways for electronic payment handling... ...is characterized in the present invention as administrative content) for electronic content and/or appliance **usage**. These pathways are used for conveyance of all or portions of content, and/or content... ...to disseminate commercially distributed property content, content control information, payment administrative content, and/or associated **usage reporting** information. Control information specified by content providers may also specify which specific parties must or... ...allow, in a practical manner, the retention and ready recall of information related to previous **usage** activities and related patterns. This flexibility is adaptable to a wide variety of billing and... ...interval of time.Use of bitmap meters (including "regular" and "wide" bitmap meters) to record **usage** and/or purchase of information, in conjunction with other elements of the preferred embodiment of the present invention, uniquely supports efficient maintenance of **usage** history for: (a) rental, (b) flat fee licensing or purchase, (c) licensing or purchase discounts based upon **historical usage** variables, and (d) **reporting** to users in a manner

enabling users to determine whether a certain item was acquired...with a remote VDE authority (until, for example, budgets are exhausted or a time content **usage reporting** interval has occurred). Traveling objects can travel "out-of-channel," allowing, for example, a user... ...distributed transaction management arrangements. VDE supports providing such executable code in the form of "atomic" **load** modules and associated data. Many such **load** modules are inherently configurable, aggregatable, portable, and extensible and singularly, or in combination (along with... ...methods are created primarily through the use of one or more of said executable, reusable **load** module code pieces (normally in the form of executable object components) and associated data. The... ...result of the submission and use of secure, control information components (executable code such as **load** modules and/or methods, and/or associated data). These components may be contributed independently by... ...operating system functions to properly direct transaction processes and data related to electronic information security, **usage** control, auditing, and **usage reporting**. VDE provides the capability to manages resources related to secure VDE content and/or appliance... ...and/or system functionality under VDE and to facilitate integration into electronic appliance environments of **load** modules and methods created under the present invention. To achieve this, VDE employs an Application... ...specifications for limiting the price per transaction, unit of time, and/or session, for accessing **history** information concerning previous transactions, for reviewing financial information such as budgets, expenditures (e.g. detailed and/or summary) and **usage** analysis information, and (c) VDE aware applications which, as a result of the use of... ...to a manageable subset particularly appropriate for a given business model allows the full configurable **power** of the present invention to be easily employed by "typical" users who would be otherwise... ...and optimally bug free by reducing the risks associated with the contribution of independently developed **load** modules, including unpredictable aspects of code interaction between independent modules and applications, as well as... ...may be used to provide individual, overall - frameworks for organizations and individuals that create, modify, **market**, distribute, consume, and/or otherwise use movies, audio recordings and live performances, magazines, telephony based retail sales, catalogs, computer software, information data bases, multimedia, commercial communications, advertisements, **market** surveys, infomercials, games, CAD/CAM services for numerically controlled machines, and the like. As the... ...of electronic information control increments. This includes supporting variable control information for budgeting and auditing **usage** as applied to a variety of predefined increments of electronic information, including employing a variety... ...units of measure, credit limit, security budget limit and security content metering increments, and/or **market** surveying and customer profiling content metering increments. For example, a CD-ROM disk with a... ...the wide area network it is installed on.

) provide mechanisms to persistently maintain trusted content **usage** and **reporting** control information through both a sufficiently secure chain of handling of content and content control information and through various

forms of **usage** of such content wherein said persistence of control may survive such use. Persistence of control... ...for this purpose and/or VDE installation control information stipulates should persist and/or control **usage** of content in the newly formed container. Such control information can continue to manage **usage** of container content if the container is "embedded" into another VDE managed object, such as... ...of information derived from their use of a VDE installation and content and/or appliance **usage** auditing. In particular, VDE can prevent information related to a participant's **usage** of electronic content from being provided to other parties without the participant's tacit or... ...independently, securely delivered further control information. Said control information may include executable code (e.g., **load** modules) that has been certified as acceptable (e.g., reliable and trusted) for use with... ...VDE distributed arrangement. This modification (evolution) of control information can occur upon content control information (**load** modules and any associated data) circulating to one or more VDE participants in a pathway... ...permission, auditing, payment, and reporting control information related to controlling, analyzing, paying for, and/or **reporting usage** of, electronic content and/or appliances (for example, as related to **usage** of VDE controlled property content). Independently delivered (from an independent source which is independent except... ...information into the control information for commercially distributed content and/or services related to appliance **usage**. Proposed control information is used to an extent allowed by senior control information and as... ...business activities which are dependent on electronic commercial product content distribution, such as acquiring detailed **market** survey information and/or supporting advertising, both of which can increase revenue and result in... ...applying different content control information to the same and/or different content and/or appliance **usage** related activities, and/or to different parties in a content and/or appliance **usage** model, such that different parties (or classes of VDE users, for example) are subject to... ...control information causing the generation of a VDE content container whose content includes customer content **usage** information reflecting secure, trusted revenue summary information and/or detailed user transaction listings (level of... ...a VDE container. Such a container may also be used for other VDE related content **usage reporting** information.

) support the flowing of content control information through different "branches" of content control information... ...or it might involve the selection of certain one or more already "in-place" content **usage** control methods over in-place alternative methods, as well as the submission of relevant control... ...flow of both VDE content control information and VDE managed content enables an electronic commerce **marketplace** which supports diverging, competitive business partnerships, agreements, and evolving overall business models which can employ... ...secured, e.g., encrypted, in part or as a whole, and may be subject to **usage** and/or auditing control information that differs from the those applied to previously in place... ...preserve VDE control over one or more portions of extracted content after various forms of **usage** of said portions, for example, maintain content in securely stored form while allowing

"temporary" on ... ...VDE capabilities thus preserving the rights of providers in said content information after various content **usage** processes.

) support the aggregation of portions of VDE controlled content, such portions being subject to... ...preserving at least a portion of the control information (e.g., executable code such as **load** modules) for each of various of said portions by, for example, embedding some or all... ...content control information produced by the negotiation may be uniform (such as having the same **load** modules and/or component assemblies, and/or it may apply differing such content control information... ...controlled content such as differing metering, budgeting, billing and/or payment models. For example, content **usage** payment may be automatically made, either through a clearinghouse, or directly, to different content providers... ...individual users, etc. This feature of the present invention can be employed for content security, **usage** analysis (for example, **market** surveying), and/or compensation based upon the use and/or exposure to VDE managed content... ...of client organization control information wherein an organization client administrator distributes control information specifying the **usage** rights of...world. Interoperability is fundamental to efficient electronic commerce. The design of the VDE foundation, VDE **load** modules, and VDE containers, are important features that enable the VDE node operating environment to... ...very broad range of electronic appliances. The ability, for example, for control methods based on **load** modules to execute in very "small" and inexpensive secure sub-system environments, such as environments......the like, electronic mail systems, teleconferencing software, and other data authoring, creating, handling, and/or **usage** applications including combinations of the above). These one or more features (which may also be... ...s), microprocessor(s), other CPU(s) or other digital processing logic.

) employ audit reconciliation and **usage** pattern evaluation processes that assess, through certain, normally network based, transaction processing reconciliation and threshold... ...one or more keys). Determining whether irregular patterns (e.g. unusually high demand) of content **usage**, or requests for delivery of certain kinds of VDE controlled information during a certain time... ...installations and/or users (including, for example, groups of related users whose aggregate pattern of **usage** is suspicious) may also be useful in determining whether security at such one or more... ...on content), secure object distribution and management (including distribution control information, financial related, and other **usage** analysis), client internal VDE activities administration and control, security management, user interfaces, payment disbursement, and... ...a large organization to assist in the organization's use of a VDE arrangement, including **usage** information analysis, and control of VDE activities by individuals and groups of employees such as specifying budgets and the character of **usage** rights available under VDE for certain groups of and/or individual, client personnel, subject to... ...concurrent database processing means). A financial clearinghouse normally receives at its location securely delivered content **usage**

information, and user requests (such as requests for further credit, electronic currency, and/or higher credit limit). **Reporting** of **usage** information and user requests can be used for supporting electronic currency, billing, payment and credit related activities, and/or for user profile analysis and/or broader **market** survey analysis and marketing (consolidated) list generation or other information derived, at least in part, from said **usage** information. this information can be provided to content providers or other parties, through secure, authenticated... ...communications between a clearinghouse and other VDE pathway participants.

) securely support electronic currency and credit **usage** control, storage, and communication at, and between, VDE installations. VDE further supports automated passing of... ...which said pathway may or may not be the same as a pathway for content **usage** information **reporting**. Such payment may be placed into a VDE container created automatically by a VDE installation... ...currency from an electronic credit or currency account based upon an amount owed resulting from **usage** of VDE controlled electronic content and/or appliances. Payment credit or currency may then be... ...Payment information may be packaged in said VDE content container with, or without, related content **usage** information, such as metering information. An aspect of the present invention further enables certain information... ...information, such as currency and/or credit use related information (and/or other electronic information **usage** data) to be available only under certain strict circumstances, such as a court order (which ... ...agreement elements. This feature requires maintaining a library of textual language that corresponds to VDE **load** modules and/or methods and/or component assemblies. As VDE methods are proposed and/or ... ...extent practical, such as VDE instances storing certain control information and content and/or appliance **usage** information on the same mass storage device and in the same VDE management database.

) requiring **reporting** and payment compliance by employing exhaustion of budgets and time ageing of keys. For example... ...content provider's content and the use of clearinghouse credit for payment for end-user **usage** of said content. Control information regarding said arrangement may be delivered to a user's... ...information might require said clearinghouse to prepare and telecommunicate to said content provider both content **usage** based information in a certain form, and content **usage** payment in the form of electronic credit (such credit might be "owned" by the provider... ...and in some embodiments, automatically, provide in the manner specified by said control information, said **usage** information and payment content. Features of the present invention help ensure that a requirement that a clearinghouse **report** such **usage** information and payment content will be observed. For example, if one participant to a VDE... ...party from successfully participating in VDE activities related to such agreement. For example, if required **usage** information and payment was not **reported** as specified by content control information, the "injured" party can fail to provide, through failing ... ...clearinghouse, which information can be necessary to authorize use of the clearinghouse's credit for **usage** of the provider's content and which

the clearinghouse would communicate to end-user's during a content **usage reporting** communication between the clearinghouse and end-user. As another example, a distributor that failed to make payments and/or **report usage** information to a content provider might find that their budget for creating permissions records to... ...g., VISA, Mastercard). The VDE card and the terminal (and/or online connection) can securely **exchange** information related to a transaction, with credit and/or electronic currency being transferred to a... ...of content for metering, billing, budgeting, and user identification, for example, paying fees associated with **usage** of content, performing home banking, managing advertising services, etc. VDE modular separation of these basic... ...be charged for each record of said database decrypted (depending on user selected currency). Such **usage** can be metered while an additional audit for user profile purposes can be prepared recording... ...user may also, under VDE (if allowed by senior control information), collect audit information reflecting **usage** of database fields by different individuals and client organization departments and ensure that differing rights of access and differing budgets limiting database **usage** can be applied to these client individuals and groups. Enabling content providers and users to...time of an electronic purchase, and/or a user might require a method that summarizes **usage** information for **reporting** to a clearinghouse (e.g. billing information) in a way that does not convey confidential, personal information regarding detailed **usage** behavior.

A further feature of VDE provided by the present invention is that creators, distributors... ...can select from among a set of predefined methods (if available) to control container content **usage** and distribution functions and/or they may have the right to provide new customized methods to control at least certain **usage** functions (such "new" methods may be required to be certified for trustedness and interoperability to... ...provides a very high degree of configurability with respect to how the distribution and other **usage** of each property or object (or one or more portions of objects or properties as... ...on behalf of a financial clearinghouse or government agency). Such control information methods (and/or **load** modules and/or mediating data and/or component assemblies) may also be put in place... ...enacted by a government agency, or the requirements of a customer of VDE managed content **usage** information (reflecting **usage** of content by one or more parties other than such customer) relating to the creation, handling and/or manner of **reporting** of **usage** information received by such customer. Such control information may, for example, enforce societal requirements such... ...appliance rights protection, including the enforcing of preferences and requirements of VDE participants.

Normally, most **usage**, audit, **reporting**, payment, and distribution control methods are themselves at least in part encrypted and are executed... ...can be directly used, such as decrypted, displayed, printed, etc;

3. (3) How payment for **usage** of such content and/or content portions may or must be handled; and

4. (4) How audit information about **usage** information related to at least a portion of a property should be collected, reported, and... ...credit providers,

3. (3) users of (other than financial service providers) information arising from content **usage** such as content specific demographic information and user specific descriptive information. Such users may include **market** analysts, marketing list compilers for direct and directed marketing, and government agencies,

4. (4) end... ...handling for electronic content, content and/or appliance control information, electronic content and/or appliance **usage** information and payment and/or credit.

VDE agreements may define the electronic commerce relationship of... ...chain of handling. This evolving agreement can establish the rights of all parties to content **usage** information, including, for example, the nature of information to be received by each party and the pathway of handling of content **usage** information and related procedures. A sixth agreement in this example, may involve all parties to... ...elaborate. They can support widely diverse information management models that provide for electronic information security, **usage** administration, and communication and may support:

(a) secure electronic distribution of information, for example commercial literary properties,

(b) secure electronic information **usage** monitoring and **reporting**,

(c) secure financial transaction capabilities related to both electronic information and/or appliance **usage** and other electronic credit and/or currency **usage** and administration capabilities,

(d) privacy protection for **usage** information a user does not wish to release, and

(e) "living" electronic information content dissemination... ...or more pathways (chains) for: the handling of content, content and/or appliance control information, **reporting** of content and/or appliance **usage** related information, and/or payment,

(3) supporting an evolution of terms and conditions incorporated into... ...required for trusted SPU hardware processes depends on the commercial requirements of particular markets or **market** niches, and may vary widely.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features and... ...this invention;

FIGURE 1A is a more detailed illustration of an example of the "Information **Utility**" shown in FIGURE 1;

FIGURE 2 illustrates an example of a chain of handling and... ...in FIGURE 13;

FIGURE 15 illustrates an example of how the channel services manager and **load** module execution manager of FIGURE 13 can support a channel;

FIGURE 15A is an example... ...shows an example of a method core structure;

FIGURE 23 shows an example of a **load** module structure;

FIGURE 24 shows an example of a User Data Element (UDE) and/or... ...100 that may be provided in accordance with this invention. In Figure 1, an information **utility** 200 connects to communications means 202 such as telephone or cable TV lines for example... ...an "electronic highway" that carries electronic information from place to place. Lines 202 connect information **utility** 200 to other people such as for example a consumer 208, an office 210, apeople connected to information **utility** 200 may be called a "VDE participant" because they can participate in transactions occurring within... ...received goods and services only after they handed cash over to a seller. Although information **utility** 200 may deliver information by transferring physical "things" such as electronic storage media, the virtual... ...100 facilitates a completely electronic "chain of handling and control."

VDE Flexibility Supports Transactions

Information **utility** 200 flexibly supports many different kinds of information transactions. Different VDE participants may define and/or participate in different parts of a transaction. Information **utility** 200 may assist with delivering information about a transaction, or it may be one of... ...programs directly to consumers 206, 208, 210, or it can send the programs to information **utility** 200 which may store and later send them to the consumers, for example. Consumers 206... ...by video production studio 204-assuming, that is, that the video production studio or information **utility** 200 has arranged for these consumers to have appropriate "rules and controls" (control information) that... ...204 wishes to receive $2.00 per viewing. Video production studio 204 may, through information **utility** 200, make the exercise video available in "protected" form to all consumers 206; 208, 210... ...2) virtual distribution environment 100 will "meter" each time a consumer watches the video, and **report usage** to video production studio 204 from time to time, and

3. (3) financial provider 212... ...who watches the video, and transfer these payments to the video production studio 204.

Information **utility** 200 allows even a small video production studio to **market** videos to consumers and receive compensation for its efforts. Moreover, the videos can, with appropriate... ...provide office-internal control information and mechanisms. For example, office 210 may set a

maximum **usage** budget for each individual user and/or group within the office, or it may permit... ...consumers 206. Even though the electronic storage media themselves are not delivered electronically by information **utility** 200 over lines 202, they are still part of the virtual distribution environment 100. The... ...to distribute content, "rules and controls," or other information.

Example of What's Inside Information **Utility** 200

"Information **utility**" 200 in Figure 1 can be a collection of participants that may act as distributors... ...administrators. Figure 1A shows an example of what may be inside one example of information **utility** 200. Information **utility** participants 200a-200g could each be an independent organization/business. There can be any number... ...of participants 200a-200g. In this example, electronic "switch" 200a connects internal parts of information **utility** 200 to each other and to outside participants, and may also connect outside participants to one another.

Information **utility** 200 may include a "transaction processor" 200b that processes transactions (to transfer electronic funds, for... ...based on requests from participants and/or report receiver 200e. It may also include a "**usage** analyst" 200c that analyzes **reported usage** information. A "**report** creator" 200d may create **reports** based on **usage** for example, and may provide these reports to outside participants and/or to participants within information **utility** 200. A "report receiver" 200e may receive **reports** such as **usage reports** from content users. A "permissioning agent" 200f may distribute "rules and controls" granting **usage** or distribution permissions based on a profile of a consumer's credit worthiness, for example... ...message storage 200g may store information for use by participants within or outside of information **utility** 200.

Example of Distributing Content" Using A Chain of Handling and Control"

As explained above... ...rules and controls." The distributor 106 generates her own "rules and controls" that relate to **usage** of the content. The **usage** -related "rules and controls" may, for example, specify what a user can and can't do with the content and how much it costs to use the content. These **usage**-related "rules and controls" must be consistent with the "rules and controls" specified by content... ...such as content user 112 uses the content in accordance with the **usage**-related "rules and controls."

In this Figure 2 example, information relating to content use is, as shown by arrow 114, **reported** to a financial clearinghouse 116. Based on this "reporting," the financial clearinghouse 116 may generate... ...and payments" network 118. Arrow 120 shows the content user 112 providing payments for content **usage** to the financial clearinghouse 116. Based on the reports and payments it receives, the financial... ...content users 112 "permission" to use certain content. They may specify what kinds of content **usage** are permitted, and what kinds are not. They may specify how

content **usage** is to be paid for and how much it costs. As another example, "rules and controls" may require content **usage** information to be **reported** back to the distributor 106 and/or content creator 102.

Every VDE participant in "chain... ...process payments,

C "Rules and controls" may specify which participant(s) receive what kind of **usage report**, and

C "Rules and controls" may specify that certain information is revealed to certain participants... ...and controls" specified by a distributor 106 that require the user to pay for content **usage** at a certain rate. "Rules and controls" may "persist" as they pass through a "chain... ...specified by the content creator 102 may permit the distributor 106 to "mark up" the **usage** price just as retail stores "mark up" the wholesale price of goods. Figure 2A shows... ...is reported to other VDE participants. As one example, "rules and controls" can cause content **usage** information to be **reported** anonymously without revealing content user identity, or it can reveal only certain information to certain participants (for example, information derived from **usage**) with appropriate permission, if required. This ability to securely control what information is revealed and... ...control the content's distribution. The preferred embodiment can securely protect content by protecting corresponding, **usage** enabling "rules and controls" against unauthorized distribution and use.

In some examples, "rules and controls... ...a virtual "credit card" that extends credit (up to a certain limit) to pay for **usage** of any content. A "credit transaction" can take place at the user's site without... ...processes-" The "events" may include, for example, a request to use content or generate a **usage** permission. Some events may need additional processing, and others may not. Whether an "event" needs... ...pay a fee for each access.

"Meter" process 404 keeps track of events, and may **report usage** to distributor 106 and/or other appropriate VDE participant(s). Figure 4 shows that process 404 can be based on a number of different factors such as:

(a) type of **usage** to charge for,

(b) what kind of unit to base charges on,

(c) how much to charge per unit,

(d) when to **report**, and

(e) how to pay.These factors may be specified by the "rules and controls... ...for events. It records and reports payment information.

Budget process 408 limits how much content **usage** is permitted. For example, budget process 408 may limit the number of times content may... ...are a special type of "method" 1000 that may specify, among other things, limitations on **usage** of information content 304, and how **usage** will be paid for. Budgets 308 can specify, for example, how much of the total... ...basic operations used by "rules and controls." Such "methods" 1000 may include, for example, how **usage** is to be "metered," if and how content 304 and other information is to be...address and data lines) with RAM 656, ROM 658 and I/O controller 660. A **power** supply 659 may provide **power** to SPU 500, CPU 654 and the other system components shown.

In the example shown... ...POST routines, etc. for use in establishing an operating environment for electronic appliance 600 when **power** is applied).

Figure 8 shows that secondary storage 652 may also be used to store... ...correction validation of information). SPU 500 may also perform secure data management processes including governing **usage** of, auditing of, and where appropriate, payment for VDE objects 300 (through the use of... ...light. SPU 500 may store secret information in internal memory that loses its contents when **power** is lost. Circuitry may be incorporated within SPU 500 that detects microprobing or other tampering... ...600. For example, microprocessor 520 may manage VDE decrypting, encrypting, certain content and/or appliance **usage** control information, keeping track of **usage** of VDE secured content, and other VDE **usage** control related functions.

Stored in each SPU 500 and/or electronic appliance secondary memory 652... ...ROS 602 includes software intended for execution by SPU microprocessor 520 for, in part, controlling **usage** of VDE related objects 300 by electronic appliance 600. As will be explained, these SPU programs include "**load** modules" for performing basic control functions. These various programs and associated data are executed and... ...a combination calendar and clock. A reliable time base is important for implementing time based **usage** metering methods, "time aged decryption keys," and other time based SPU functions.

The RTC 528 must receive **power** in order to operate. Optimally, the RTC 528 **power** source could comprise a small battery located within SPU 500 or other secure enclosure. However, the RTC 528 may employ a **power** source such as an externally located battery that is external to the SPU 500. Such an externally located battery may provide relatively uninterrupted **power** to RTC 528, and may also maintain as non-volatile at least a portion of the otherwise volatile RAM 534 within SPU 500.

In one implementation, electronic appliance **power** supply 659 is also used to **power** SPU 500. Using any external **power** supply as the only **power** source for RTC 528 may significantly reduce the usefulness of time based security techniques unless... ...minimum, SPU 500 recognizes any interruption (or any material interruption) of the supply of external **power**, records such interruption, and responds as may be appropriate such

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as disabling the ability of the SPU 500 to perform certain or all VDE processes. Recognizing a **power** interruption may, for example, be accomplished by employing a circuit which is activated by **power** failure. The **power** failure sensing circuit may **power** another circuit that includes associated logic for recording one or more **power** fail events. Capacitor discharge circuitry may provide the necessary temporary **power** to operate this logic. In addition or alternatively, SPU 500 may from time to time... ...some portion of processes performed by SPU 500 under at least some circumstances.

If a **power** failure and/or RTC 528 discrepancy and/or other event indicates the possibility of tampering... ...strings to determine whether they compare in a predetermined way. In addition, certain forms of **usage** (such as logical and/or physical (contiguous) relatedness of accessed elements) may require searching potentially... ...distribution and whose decompression speed is important. In some cases, information that is useful for **usage** monitoring purposes (such as record separators or other delimiters) is "hidden" under a compression layer... ...such as SPU control firmware 508 and, if desired, encryption key information and certain fundamental "**load** modules." The "kernel" programs, **load** module information, and encryption key information enable the control of certain basic functions of the... ...POST, memory allocation, and a dispatcher) may be loaded in ROM 532 along with additional **load** modules that have been determined to be required for specific installations or applications.

In the... ...benefit of providing EEPROM and/or flash memory 532b is the ability to optimize any **load** modules and library functions persistently stored within SPU 500 based on typical **usage** at a specific site. Although these items could also be stored in NVRAM 534b, EEPROM... ...masked ROM 532a. Items that need to be updated or that need to disappear when **power** is removed from SPU 500 should not be stored in masked ROM 532a.

Under some... ...so as to be non-volatile (i.e., it does not lose its contents when **power** is turned off).

High-speed RAM 534a stores active code to be executed and associated... ...the operation of SPU 500. For security reasons, certain highly sensitive information (e.g., certain **load** modules and certain encryption key related information such as internally generated private keys) needs to... ...store data that may change frequently but which preferably should not be lost in a **power** down or **power** fail mode.

NVRAM 534b is preferably a flash memory array, but may in addition or...execution by SPU 500. "Kernel" programs and/or some or all of the non-kernel " **load** modules" may be stored by SPU 500 in memory external to it. Since a secure... ...an external hard disk (assuming transfer to flash or hard disk can occur in significant **power** or system failure cases);

C provide encryption and decryption buffers for data being released from... ...platforms

C can be seamlessly integrated with a host operating system. to provide a common **usage** paradigm for transaction management and content access

C integration may take many forms: operating system ... ...with the other components. Typically, this piece of software is designed to begin executing after **power** is applied to the computer system and hardware diagnostics are completed. Thereafter, all use of... ...differently on different equipment. For example, a small appliance that typically has low levels of **usage** by one user may implement a database service using very different techniques than a very large appliance with high levels of **usage** by many users. This is another aspect of scalability.

ROS 602 provides a distributed processing... ...more components at the same or other locations in a controlled way. For example, a **usage** control associated with object content at auser's location may have a reciprocal control at a distributor's location that governs distribution of the **usage** control, auditing of the **usage** control, and logic to process user requests associated with the **usage** control. A **usage** control at a user's location (in addition to controlling one or more aspects of **usage**) may prepare audits for a distributor and format requests associated with the **usage** control for processing by a distributor. Processes at either end of a reciprocal control may ... ...processes (e.g., a distributor may be limited by a budget for the number of **usage** control mechanisms they may produce). Reciprocal control mechanisms may extend over many sites and many... ...as easily as between cooperative processors in a single computer. Appliances with different levels of **usage** and/or resources available for ROS 602 functions may implement those functions in very different... ...construct provided by the preferred embodiment called a "channel") at execution time. For example, a "**load** module" for execution by SPU 500 may reference one or more "method cores," method parameters... include explicit calls to ROS 602 requesting the creation of new VDE objects 300, metering **usage** ofVDE objects, storing information in VDE-protected form, etc. Thus, a "VDE aware" application can... ...different element could have disastrous consequences in terms of allowing a person to charge her **usage** to someone else's (or a non-existent) credit card. These are merely a few... ...based on the following types of elements:

Permissions Records ("PERC"s) 808;

Method "Cores" 1000;

Load Modules 1100;

Data Elements (e.g., User Data Elements ("UDEs") 1200 and Method Data Elements... ...different ways. For example, a METER method may respond to a "use" event by storing **usage** information in a meter data structure. The same METER method may respond to an "administrative... ...preferred

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embodiment, method core 1000' may "contain," either explicitly or by reference, one or more "**load** modules" 1100 and one or more data elements (UDEs 1200, MDEs 1202). In the preferred embodiment, a " **load** module" 1100 is a portion of a method that reflects basic instructions and intrinsic data. **Load** modules 1100 in the preferred embodiment contain executable code, and may also contain data elements ("DTDs" 1108) associated with the executable code. In the preferred embodiment, **load** modules 1100 supply the program instructions that are actually "executed" by hardware to perform the process defined by the method. **Load** modules 1100 may contain or reference other **load** modules.

Load modules 1100 in the preferred embodiment are modular and "code pure" so that individual **load** modules may be reenterable and reusable. In order for components 690 to be dynamically updatable... ...be individually addressable within a global public name space. In view of these design goals, **load** modules 1100 are preferably small, code (and code-like) pure modules that are individually named and addressable. A single method may provide different **load** modules 1100 that perform the same or similar functions on different platforms, thereby making the... ...shown in Figure 11E comprises a method core 1000', UDEs 1200a & 1200b, an MDE 1202, **load** modules 1100a-1100d, and a further component assembly 690(k+1). As mentioned above, a... ...the components that are to be assembled to create a component assembly.

One of the **load** modules 1100b shown in this example is itself comprised of plural **load** modules 1100c, 1100d. Some of the **load** modules (e.g., 1100a, 1100d) in this example include one or more "DTD" data elements... ...e.g., 1108a, 1108b). "DTD" data elements 1108 may be used, for example, to inform **load** module 1100a of the data elements included in MDE 1202 and/or UDEs 1200a, 1200b... ...inform a user as to the information required and/or manipulated by one or more **load** modules 1100, or other component elements. Such an application program may also include functions for... ...602 is a finite task. Aspects of its wealth of functionality can remain unexploited until **market** realities dictate the implementation of corresponding VDE application functionality. As a result, initial product implementation...example of one possible set of common entry points are listed below in the table.

Load

In the preferred embodiment, services (and the associated RSIs they present to RPC manager 732) may be activated during boot by an installation boot process that issues an RPC **LOAD**. This process reads an RPC Services Table from a configuration file, loads the service module... ...time loadable (as opposed to being a kernel linked device driver), and then calls the **LOAD** entry point for the service. A successful return from the **LOAD** entry point will indicate that the service has properly loaded and is ready to accept requests.

RPC **LOAD** Call Example: SVC(underscore)**LOAD** (long service(underscore)id)

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This **LOAD** interface call is called by the RPC manager 732 during rights operating system 602 initialization. It permits a service manager to **load** any dynamically loadable components and to initialize any device and memory required by the service... ...store control and status information. For example, in a BSD socket based network connection, a **LOAD** call will initialize the software and protocol control tables, a MOUNT call will specify networks... ...730 that underlies the secure database service, may not be "mountable." In this case, a **LOAD** call will make a connection to a database manager 730 and ensure that records are... ...callback for each message.

Close, Unmount and Unload

The converse of the OPEN, MOUNT, and **LOAD** calls are CLOSE, UNMOUNT, and UNLOAD. These interface calls release any allocated resources back to ... ...memory manager 680a).

RPC CLOSE Call Example: SVC(underscore)CLOSE (long svc(underscore)handle)

This **LOAD** interface call closes an open service "handle." A service "handle" describes a service and subservice... ...speed access, efficient updates, and easy integration to host systems at the cost of resource **usage** (most commercial database managers use many system resources).

The site record number approach uses a... other than the one operated by a user who has, or wishes to obtain, some **usage** rights to such VDE objects. In this case, External Services Manager 772 may manage a... ...information, one or more PERCs 808, one or more method cores 1000', one or more **load** modules 1100, one or more data structures such as UDEs 1200 and/or MDEs 1202... ...structures, and manages the SPU bus interface unit 530. Kernel/dispatcher 552 also includes a **load** module execution manager 568 that can **load** programs into secure execution space for execution by SPU 500.

In the preferred embodiment, kernel/dispatcher 552 may include the following software/functional components:

load module execution manager 568

task manager 576

memory manager 578

virtual memory manager 580

"low... ...perform simple metering, budgeting and billing using subsets of VDE methods combined into single "aggregate" **load** modules to permit the various methods to execute in a single tasking environment. However, an... ...the preferred embodiment, it contains a list of references to shared data elements (e.g., **load** modules 1100 and UDEs 1200), private data elements (e.g., method data and local stack... ...e., pages changed

by SPE 503) associated with the previously loaded swap blocks, and to **load** all required pages for the new swap block context.

Kernel/dispatcher 522 preferably manages the... ...individual data structures as they are loaded. Once locked, no other SPE 503 task may **load** them and will "block" waiting for the data structure to become available. Using a single... ...SPE 503 may, as a practical matter, limit the ability of outside vendors to create **load** modules 1100 since there can be no assurance that they will not cause a "deadly...system provides an effective mechanism for protecting VDE component assemblies 690 from compromise by "rogue" **load** modules.

In addition, memory management provided by memory manager 578 operating at least in part... ...or become, very large. This eventuality may be addressed in two ways:

1. (1) subdividing **load** modules 1100; and

2. (2) supporting virtual paging.

Load modules 1100 can be "subdivided" in that in many instances they can be broken up into separate components only a subset of which must be loaded for execution. **Load** modules 1100 are the smallest pagable executable element in this example. Such **load** modules 1100 can be broken up into separate components (e.g., executable code and plural data description blocks), only one of which must be loaded for simple **load** modules to execute. This structure permits a **load** module 1100 to initially **load** only the executable code and to **load** the data description blocks into the other system pages on a demand basis. Many **load** modules 1100 that have executable sections that are too large to fit into SPU 500 can be restructured into two or more smaller independent **load** modules. Large **load** modules may be manually "split" into multiple **load** modules that are "chained" together using explicit **load** module references.

Although "demand paging" can be used to relax some of these restrictions, the... ...allow limited resource SPU 500 configurations to execute large and/or multiple tasks.

C. SPE **Load** Module Execution Manager 568

The SPE (HPE) **load** module execution manager ("LMEM") 568 loads executables into the memory managed by memory manager 578 and executes them. LMEM 568 provides mechanisms for tracking **load** modules that are currently loaded inside the protected execution environment. LMEM 568 also provides access to basic **load** modules and code fragments stored within, and thus always available to, SPE 503. LMEM 568 may be called, for example, by **load** modules 1100 that want to execute other **load** modules.

In the preferred embodiment, the **load** module execution manager 568 includes a **load** module executor ("program loader") 570, one or more

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internal **load** modules 572, and library routines 574. **Load** module executor 570 loads executables into memory (e.g., after receiving a memory allocation from memory manager 578) for execution. Internal **load** module library 572 may provide a set of commonly used basic **load** modules 1100 (stored in ROM 532 or NVRAM 534b, for example). Library routines 574 may... ...list of such library functions along with their entry points and parameters may be used. **Load** modules 1100 may call these routines (e.g., using an interrupt reserved for this purpose). Library calls may reduce the size of **load** modules by moving commonly used code into a central location and permitting a higher degree of code reuse. All **load** modules 1100 for use by SPE 503 are preferably referenced by a **load** module execution manager 568 that maintains and scans a list of available **load** modules and selects the appropriate **load** module for execution. If the **load** module is not present within SPE 503, the task is "slept" and LMEM 568 may request that the **load** module 1100 be loaded from secondary storage 562. This request may be in the form of an RPC call to secure database manager 566 to retrieve the **load** module and associated data structures, and a call to encrypt/decrypt manager 556 to decrypt the **load** module before storing it in memory allocated by memory manager 578.

In somewhat more detail, the preferred embodiment executes a **load** module 1100 by passing the **load** module execution manager 568 the name (e.g., VDE ID) of the desired **load** module 1100. LMEM 568 first searches the list of "in memory" and "built-in" **load** modules 572. If it cannot find the desired **load** module 1100 in the list, it requests a copy from the secure database 610 by... ...request that may be handled by ROS secure database manager 744 shown in Figure 12. **Load** module execution manager 568 may then request memory manager 578 to allocate a memory page to store the **load** module 1100. The **load** module execution manager 568 may copy the **load** module into that memory page, and queue the page for decryption and security checks by... ...556 and key and tag manager 558. Once the page is decrypted and checked, the **load** module execution manager 568 checks the validation tag and inserts the **load** module into the list of paged in modules and returns the page address to the caller. The caller may then call the **load** module 1100 directly or allow the **load** module execution module 570 to make the call for it.

Figure 15a shows a detailed... ...CDRs may include explicitly and/or by reference each method core 1000N (or fragment thereof), **load** module 1100 and data structure(s), (e.g., URT, UDE 1200 and/or MDE 1202... ...use the "blueprint" to access (e.g, the secure database manager 566 and/or from **load** module execution manager library(ies) 568) the appropriate "control method" that may be used to... ...block 1139) by constructing an associated channel detail record specifying the method core(s) 1000N, **load** module(s) 1100, and associated data structure(s) (e.g., UDE(s) 1200 and/or... ...the preferred embodiment:

C "tick" of RTC 528

C interrupt from bus interface 530

C **power** fail interrupt

C watchdog timer interrupt

C interrupt from encrypt/decrypt engine 522

C memory... ...word change interrupt and addresses the appropriate
send/receive buffers accordingly.

SPU 500 generates a **power** fail interrupt when it detects an imminent
power fail condition. This may require immediate action to prevent loss
of information. For example, in the preferred embodiment, a **power** fail
interrupt moves all recently written information (i.e., "dirty pages")
into non-volatile NVRAM 534b, marks all swap blocks as "swapped out," and
sets the appropriate **power** fail flag to facilitate recovery processing.
Kernel/dispatcher 552 may then periodically poll the "**power** fail bit" in
a status word until the data is cleared or the **power** is removed
completely.

SPU 500 in the example includes a conventional watchdog timer that
generates... ...embodiment provide "low level" functions. These functions
in the preferred embodiment may include, for example, **power**-on
initialization, device POST, and failure recovery routines. Low level
services 582 may also in... ...passing "events" from services supported
by SPE 503 (HPE 655) to the various methods and **load** modules that have
been specified to process these events, and also supports the assembly
of... ...is a data structure maintained by channel manager 593 that
"binds" together one or more **load** modules 1100 and data structures (i.e.,
UDEs 1200 and/or MDEs 1202) into a component assembly 690. Channel
services manager 562 causes **load** module execution manager 569 to **load** the
component assembly 690 for execution, and may also be responsible for
passing events into... ...Once the channel is created, the channel
services manager 562 may issue function calls to **load** module execution
manager 568 based on the channel 594. The **load** module execution manager
568 loads the **load** modules 1100 referenced by a channel 594, and requests
execution services by the kernel/dispatcher... ...event processing
request as a task, and executes it by executing the code within the **load**
modules 1100 referenced by the channel.

The channel services manager 562 may be passed an... ...the component
assembly 690. These called-for method(s) and data structure(s) (e.g.,
load modules 1100, UDEs 1200 and/or MDEs 1202) are each decrypted using
encrypt/decrypt manager... ...to, in effect, "link" or "bind" the
elements into a single cohesive executable so the **load** module(s) can
reference data structures and any other **load** module(s) in the component
assembly. Channel manager 562 may then issue calls to LMEM 568 to **load**
the executable as an active task.

Figure 15 shows that a channel 594 may reference... ...i.e., task)
associated with that event. The "swap block" may reference one or more
load modules 1100, UDEs 1200 and private data areas required to properly

process the event. One... ...RPC dispatch table. The preferred embodiment RPC dispatch table is organized as a list of **Load** Module references for each RPC service supported internally by SPU 503. Each row in the table contains a **load** module ID that services the call, a control byte that indicates whether the call can be made from an external caller, and whether the **load** module needed to service the call is permanently resident in SPU 500. The RPC dispatch... ...RPC dispatch table is in EEPROM, it flexibly allows for updates to the services without **load** module location and version control issues.

In the preferred embodiment, SPE RPC manager 550 first... ...Once the RPC manager 550 locates the service reference in the RPC dispatch table, the **load** module that services the request is called and loaded using the **load** module execution manager 568. The **load** module execution manager 568 passes control to the requested **load** module after performing all required context configuration, or if necessary may first issue a request to **load** it from the external management files 610.

SPU Time Base Manager 554

The time base... ...may be provided by encrypt/decrypt manager 556 in software. The primary bulk encryption/decryption **load** modules preferably are loaded at all times, and the **load** modules necessary for other algorithms are preferably paged in as needed. Thus, if the primary bulk encryption/decryption algorithm is DES, only the DES **load** modules need be permanently resident in the RAM 534a of SPE 503/HPE 655.

The...failure: This information may be analyzed to detect cracking attempts or to determine patterns of **usage** outside expected (and budgeted) norms. The audit trail histories in the SPU 500 may be... ...a counter plus limit. Counter mode may be used by VDE administrators to determine device **usage**. The limit mode may be used to limit tampering and attempts to misuse the electronic... ...administrator. Calls to the system wide event summary process may preferably be built into all **load** modules that process the events that are of interest

The following table shows examples of... ...registered by the VDE administrator that first initializes SPE 503 (HPE 655). Certain currency consuming **load** modules and audit **load** modules that complete the auditing process for consumed currency budget may call the summary services manager 560 to update the currency consumed value. Special authorized **load** modules may have access to the overall currency summary, while additional summaries can be registered... ...versions of SPU 500 may be implemented using significantly smaller amounts of RAM 534. "Aggregate" **load** modules as described above may remove flexibility in configuring VDE structures and also further limit...

?